

A case study: assessing the quality of source water fed to pigs in Western Australia



This note presents key points from a case study conducted during 2022 and 2023 to assess the quality of source water fed to pigs in Western Australia.

- The suitability of water for pigs in all production phases depends to an extent on soluble salts present in it.
- The TDS (total dissolved solids) content is often used as a proxy for salinity with the generally recommended safe level for water fed to pigs being less than 3,000 mg/L, with the acceptable standard for chloride (Cl) being 250 mg/L, and sodium (Na) being 150 mg/L.
- In pigs, excess Cl and Na can cause increased water intake, can affect the gut microbiome, and importantly impact the activity of some antibiotics delivered via the water.
- Additional elements, such as iron, magnesium and manganese contribute to TDS in water and may be of concern to some producers.
- In terms of TDS, little seasonal and yearly variability was found for locally sourced water used by a broad representation of WA piggeries.
- TDS levels varied in water used by piggeries in different regions across the State.
- Portable on-farm water quality meters for rapid assessment of TDS and pH are readily available.
- Those tested in this study were found to be reliable.
- With regard to TDS, most water samples had more than 50% Cl and Na but other compounds and elements such as nitrite and iron also had some importance for some producers.
- A key finding in this Project was the disparity between TDS, Cl and Na levels in water and the recommended acceptable levels for each, for pigs.
- The majority of samples had a TDS level below the accepted standard level of 3,000 mg/L.
- Only a third of samples had a level of Cl and Na below that acceptable standard.
- A possible implication is that the generally acceptable level for TDS is not a good proxy for the acceptable level of Cl and Na found in water sources fed to pigs in WA.
- As producers have ready access to TDS meters but not Cl and Na testing, it is important that they have a good understanding of TDS in terms of the inorganic salts that comprise their TDS measurement.
- An abstract based on findings from this Project was accepted for presentation at the 2023 Australasian Pig Science Association (Inc) Conference and will further enhance this discussion.
- As an extension to this Project, PIWA has been successful in attaining funding from the Federal Government's Extension and Adoption of Drought Resilience Farming Practices Grants Program. The Project, *Managing water in a changing climate - An extension toolkit to facilitate adoption of best practice water management for pork and poultry producers in Western Australia*, will enable factsheets and info notes pertaining to the findings from this Project, and water management in general, to be written and extended to producers in Western Australia.



The information contained in this document is based on field tested and independent laboratory tested samples of water. These test results have been compared to generalised data, where that data is publicly available and is of a general nature only. The data is provided under the Pork Innovation WA Inc. Project, A case study: assessing the quality of source water fed to pigs in Western Australia. The providers shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report and in no case shall the providers be liable for consequential loss including, but not limited to, lost profits. Except as prohibited by law, we disclaim and take no responsibility for any errors in, or omissions from, the information. You should not rely upon this information but should make your own enquiries about the subject matter of this document.